

Presented thesis focuses on the study of transport properties of two intermetallic compounds, CeRhSi_3 and CeCuAl_3 , under high external pressure. High-pressure dependence of previously reported pressure induced superconductivity in CeRhSi_3 is studied closely up to 4.6 GPa, focusing on the, so-far-unstudied, pressure region above 3 GPa. After reaching maximal value at 2.9 GPa, the critical temperature of superconducting transition is gradually suppressed by further pressure application. Extensive search for possible pressure induced superconductivity in CeCuAl_3 is conducted, employing solid-pressure-medium Bridgman anvil cells with theoretical pressure limit of 12 GPa. No pressure induced superconductivity is observed up to 4.5 GPa and down to 8 mK. Additionally, a calibration study of three liquid pressure exchange media from Daphne Oil 7000 series is carried out in order to advance high pressure experimental techniques. Comprehensive results about hydrostaticity, solidification, pressure drop and compressibility of individual pressure media are presented.